REMARKS

Reconsideration of pending claims 1 – 8 and 10 – 37 is requested.

Claim 1 features apparatus for controlling motion of a motor driven element in a vehicle over a range of motion and for altering that motion when undesirable resistance to motion is encountered. A sensor measures a parameter of a motor coupled to the motor driven element that varies in response to a resistance to motion during all or part of a range of motion of the motor driven element. *A memory is used to store a number of measurement values from the sensor based on immediate past measurements of the parameter over at least a portion of a present path of travel of the motor driven element through its range of motion.* A controller coupled to the memory determines whether to de-activate the motor based on *a most recent sensor measurement of the parameter and the immediate past measurement values stored in the memory* as the motor driven element moves over its range of motion. A controller interface coupled to the motor alters motion of the motor driven element in response to a determination made by the controller.

The controller featured in claim 1 performs its collision detection based on real time data obtained during a present run of the window or panel. Unlike the invention featured in claim 1, the Jones et al system disclosed in US 4,831,509 uses training data stored by the control during a training run to signal a collision between a door and an obstacle and therefore neither shows nor suggests the structure of claim 1.

At column 3, line 17, Jones et al notes, "In order to determine a door travel characteristic the processing means samples the time taken for the door curtain to travel a fixed distance and therefrom determines changes in the speed of the door." At column 4, line 49 Jones et al states "As stated above the stored running average of peak speed changes for a segment is regularly compared with the calculated peak speed change for the same segment on a present run of the door. If this new value exceeds the stored value, the door controller will consider an obstruction to have been detected in the travel path of the door."

These two statements from columns 3 and 4 must be interpreted in light of the

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Jones et al definition of a 'segment' found   at column 3, line 20. The Jones et al system works "by notationally dividing the door travel into a plurality of segments and further sub-dividing each segment into a plurality of secto[r]s (*sic*) and producing a running average of peak speed changes for each sector."

Returning to the Jones et al collision detection scheme defined at column 4 and assume a collision is encountered sometime during a run, i.e. during a one way traversal by the door in its travel path. Specifically, assume the time it takes to traverse a sector (recall multiple sectors make up a segment) is dramatically greater than previously encountered. Jones et al assumes such dramatic change in speed is due to a collision.

The Jones et al control compares the dramatic speed change of that sector (sector x, for example) with an average peak speed change for the segment (16 consecutive sectors) in which sector x is located. The controller can not calculate the average peak speed change for the segment containing the sector x on a real time basis as featured in claim 1. All sectors within the segment have not been encountered or traversed. Stated another way, the Jones et al collision detected must be based on old data. Jones et al must be using old data from a prior door run (sometimes referred to as a training run) and hence neither shows nor suggests applicants invention.

The advantages achieved through practice of the invention are significant. Assume weeks go by between operation of a vehicle sunroof for example. The temperature could have changed dramatically. The roof might have been closed with the vehicle parked during its last run sequence and therefore the drag encountered due to wind resistance was different. On the present run, the sunroof is closed as the car is traveling down the highway at a reasonable rate and the temperature is much higher. How will the controller react if it is relying on old data? The Jones et al system must use old data and hence may not react properly. This fact highlights the fact that a system satisfactory for use as a garage door control may not work as effectively in a motor vehicle control for a window or panel of a motor vehicle. Jones et al neither anticipates nor renders obvious the subject matter of claim 1 and this claim is patentable.

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New claim 36 depends on allowable claim 1 and is also allowable. This claim features the apparatus of claim 1 wherein the immediate past measurements used in determining a threshold are taken within a forty millisecond interval prior to the most recent sensor measurement. Since Jones et al relies on old data observed during an old run or sequence, there is no suggestion of this feature and therefore this claim is patentable.

Claim 2 features a method for controlling motion of a *motor driven element in a vehicle* over a range of motion and for altering the motion when undesirable resistance to the motion is encountered. The method is performed by *measuring a parameter of a motor coupled to the motor driven element* that varies in response to a resistance to motion during all or part of a range of motion of the motor driven element by taking a multiplicity of measurements as the motor moves the motor driven element over its range of motion. A number of measurement values are stored based on measurements of the motor parameter over at least a portion of its range of motion. If the parameter is determined to be outside a parameter range based on previous stored measurement values as the motor driven element moves over its range of motion, the method of claim 2 alters motion of said motor driven element.

Claim 2 was rejected in the last office action as being anticipated under 35 USC 102(b) on the basis of Jones et al (US 4,831,509).

The Court of Appeals for the Federal Circuit has held that language found in the preamble of a claim that is also included in the body of the claim limits the claim "by virtue of its inclusion." *Catalina Marketing,* 62 USPQ2d at 1787; *see also British Telecommunications v. Prodigy Communs.,* 217 F.Supp.2d 399, 413 (S.D.N.Y. 2002) (finding that a preamble term limited the claim because it was also found in the body of the claim). In the *Telecommunications* decision it was held that the preamble provided structure to the claim body, a "central computer" being the terms at issue. The *Telecommunications* decision differs somewhat from *Catalina Marketing* where the claim language was concentrated on use, reciting "a plurality of free standing terminals *located at predesignated sites such as consumer stores*". *Catalina Marketing,* 62

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USPQ2d at 1783 (emphasis added on   terms at issue). The Federal Circuit even articulated such by identifying the claim language as defining an intended use, stating, "the location of the terminals in stores merely gives an intended use for the claimed terminals." *Id.*, at 1786-87. But, the Court held the same language in claim 25 limited the claim because it was found the language in both the preamble and body of the claim.

In the present instance claim 2 calls for, in part *a motor driven element in a vehicle*. Whether this term is interpreted as a use or a structure, weight must be given to its recitation since it is used again in the claim body, i.e. the recitation of the motor driven element is found throughout the claim. Since Jones et al neither shows nor suggests a motor driven element in a vehicle, this claim is not properly rejected either as being anticipated or rendered obvious by Jones et al. Stated another way a *prima facie* basis of rejection is not found in Jones et al.

Claim 2 also recites *measuring a parameter of a motor coupled to the motor driven element.* Turning to Jones et al, at column 3, line 7 , Jones et al states that "the door curtain position relative to the door opening is obtained from an encoder coupled *to the door drum.* (emphasis added) Pulses are provided to the encoder from optoelectronic sensors appropriately placed or positioned in relation to a set of spinning blades coupled to the drive means for the roller door."

In Jones et al the speed and position of the door increase when lowered due to the added affect of gravity and the speed and position decrease as the door is raised. Jones teaches a door position encoder "for providing signals indicative of the position of the door curtain relative to the door opening". column 1 line 53 of Jones et al, but there is no teaching or suggestion of measuring a parameter of a motor coupled to a motor driven element. By noting that the motor load "is dependent on the position of the door" as a criticism of using motor load monitoring devices, Jones et al explicitly teaches away from measuring a parameter of the motor and using that parameter to determine if the parameter is outside a range as featured in claim 2.

For the foregoing reasons, claim 2 is not anticipated nor rendered obvious in the

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prior art patent to Jones et al and is   therefore allowable. Claims 3 – 5 depend on allowable claim 2 and are also allowable.

Claim 6 features apparatus for controlling activation of a motor coupled to a motor vehicle window or panel for moving the window or panel along a travel path. The panel or window movement is stopped in the event an obstacle is encountered by the window or panel. The apparatus includes a sensor that senses movement of the window or panel and provides a sensor output signal related to a speed of movement of the window or panel. A switch controls actuation of the motor by providing an energization signal and a controller has an interface coupled to the sensor and the switch to control energization of the motor.

The controller of claim 6 implements real time collision sensing better suited (than Jones et al) to use with a controller moving a window or panel mounted in a motor vehicle. The exemplary controller:

i) monitors movement of the window or panel by monitoring a signal from the sensor related to the movement of the window or panel;

ii) adjusts an obstacle detection threshold in *real time based on immediate past measurements of the signal sensed by the sensor to adapt to varying conditions encountered during operation of the window or panel;*

iii) identifies a collision of the window or panel with an obstacle due to a change in the signal from the sensor that is related to a change in movement of the window or panel by comparing a value based on a most recent signal from the sensor with the obstacle detection threshold; and

iv) outputs a control signal to the switch to deactivate the motor in response to a sensing of a collision between an obstacle and the window or panel.

As discussed above, the Jones et al patent neither shows nor suggests the italicized features of claim 6 and accordingly this claim is allowable.

Claims 7, 8, 10, 11 and 37 depend from allowable claim 6 and are also allowable. The comments above regarding new claim 36 are also applicable to claim 37.

Claim 12 features apparatus for controlling activation of a motor for moving an

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object along a travel path and de-activating the motor if an obstacle is encountered by the object. A movement sensor monitors movement of the object as the motor moves the object along a travel path. A switch controls energization of the motor with an energization signal and a controller includes an interface coupled to the switch for controllably energizing the motor. The interface also couples the controller to the movement sensor for monitoring signals from said movement sensor. The controller has a stored program that:

i) determines motor speed of movement from an output signal from the movement sensor;

ii) *calculates an obstacle detect threshold based on motor speed of movement detected during a present run of said motor driven element*;

iii) compares a value based on currently sensed motor speed of movement with the obstacle detect threshold; and

iv) outputs a signal from the interface to said switch for stopping the motor if the comparison based on currently sensed motor movement indicates the object has contacted an obstacle.

Jones et al neither shows nor suggests calculating an obstacle detect threshold based on motor speed of movement detected during a present run of the motor driven element and for this reason claim 12 is allowable.

Claims 13 – 18 depend on allowable claim 12 and are also allowable.

Claim 19 features apparatus for controlling activation of a motor for moving a window or panel along a travel path and de-activating the motor if an obstacle is encountered by the window or panel. A sensor senses movement of a window or panel along a travel path and a switch controls energization of the motor with an energization signal.

Claim 19 also includes a controller coupled to the switch for controllably energizing the motor and having an interface coupling the controller to the sensor and to the switch. The controller implements decision making logic for:

i) monitoring a signal from the sensor;

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ii) *calculating a real time obstacle detect threshold based on the signal that is detected during at least one prior period of motor operation during movement along a present or current path of travel of said window or panel*;

iii) comparing a value based on a currently sensed motor parameter with the obstacle detect threshold; and

iv) stopping movement of the window or panel by controlling an output to said switch that controls motor energization if the comparison based on a currently sensed motor parameter indicates the window or panel has contacted an obstacle.

Jones et al neither shows nor suggests the italicized features of the controller recited in claim 19 and this claim is allowable.

Claim 20 features apparatus for controlling activation of a motor for moving a window or panel along a travel path. An obstacle detection controller monitors at least a part of the travel path of the window or panel for sensing and generating an obstacle detect signal indicating the presence in said travel path of an obstacle to movement of the window or panel.

The controller processes speed signals and obstacle detection signals and controls operation of the motor in response to either the speed or obstacle detection signals. The controller includes:

i) a storage for storing a number of speed signals that vary with motor speed;

ii) a processor for calculating *an obstacle detect threshold based on one or more speed signals stored in said storage obtained in real time based on immediate past measures of the signal sensed by the sensor to adapt to varying conditions encountered during movement along a present path of travel* of the window or panel;

iii) a logic unit makes a comparison between a value representing window or panel speed based on currently sensed motor speed with the calculated obstacle detect threshold, a predetermined threshold, and generating a control output if an obstacle is detected based on said comparison; and

iv) an interface coupled to said switch for changing the state of the switch to stop the motor.

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The obstacle detect threshold is based on one or more speed signals stored in said storage obtained in real time based on immediate past measures of the signal. This feature allows the controller to adapt to varying conditions encountered during movement along a present path of travel of said window or panel. These aspects of the invention are neither shown nor suggested by the patent to Jones et al. Accordingly claim 20 and dependent claims 21 – 27 are allowable

Additionally claim 23 features an obstacle detector having an output coupled to the controller that senses a disruption in a region through which the window or panel moves. This redundant obstacle detection feature is neither shown nor suggested in the art and for this additional reason claims 23 – 27 are allowable.

Claim 28 features apparatus for controlling activation of a motor coupled to a *motor vehicle window or panel* for moving said window or panel along a travel path and de-activating the motor when a predetermined position is encountered by the window or panel. A sensor senses movement of the window or panel and providing a sensor output signal related to a position of the window or panel. A switch controllably actuates the motor by providing an energization signal. A controller having an interface is coupled to the sensor and the switch for controllably energizing the motor. The controller determines the position of the window or panel when power is applied to the controller by monitoring the position of the window or panel by monitoring the sensor output signal from the sensor related to the position of the window or panel. The controller also identifies the position of the window or panel based on the sensor output signal from the sensor and outputs a control signal to the switch to deactivate said motor in response to a sensing of the predetermined position of said window or panel.

The Jones et al patent (US 4,831,509) is not a proper anticipatory reference under 35 USC 102 since Jones et al do not disclose a motor vehicle window or panel and those terms appear in both in the preamble and the claim body. See the discussion above with regard to claim 2. Reconsideration of claim 28 and dependent claims 29 – 32 is requested.

Claim 33 features apparatus for controlling activation of a motor for moving a

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motor driven element in a vehicle over a range of motion and de-activating the motor when undesirable resistance to motion of the element is encountered. The apparatus has a sensor for sensing *a speed of the motor* and generating an output signal representative of a speed of the motor that changes when undesirable resistance to motion of the element is encountered. The arguments that the Jones et al patent is not a proper anticipatory reference made with regard to claim 2 are appropriate with respect to claim 33 as well. Jones et al does not show a motor drive element in a vehicle nor does it teach a sensor for sensing speed of the motor. Reconsideration of that rejection and the rejections of claims 34 and 35 is requested.

All claims are believed to be in condition for allowance and prompt issuance of a Notice of Allowance is respectfully requested. If any fees are determined to be due, the commissioner is authorized to charge those fees to deposit account no 20-0090.

Respectfully submitted,

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